

WHAT IS CLAIMED IS:

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5 1. An inverted microscope system comprising:
a microscope main body having an objective lens
opposed to a sample, a primary image forming optical
system which forms an intermediate image of the sample
in cooperation with the objective lens, and focusing
means for changing a relative distance between the
sample and the objective lens and forming the
intermediate image of the sample at a predetermined
position;

illumination means which is detachable with
respect to the microscope main body, for generating
illumination light to the sample; and

15 an additional unit which is detachable with
respect to the microscope main body and includes an
observation tube to observe the intermediate image of
the sample.

20 2. The inverted microscope system according to
claim 1, wherein the additional unit having a relay
optical system to relay the intermediate image of the
sample to the observation tube.

25 3. The inverted microscope system according to
claim 2, wherein the additional unit further comprising
an optical element which takes out a part of a beam of
the intermediate image of the sample relayed by the
relay optical system, and a port to which image pickup
means is attached, the image pickup means picking up a

sample image taken out via the optical element.

4. The inverted microscope system according to claim 3, wherein the microscope main body further comprising an optical element which reflects observation light from the sample outgoing from the objective lens in any one of an obliquely upward direction and a horizontal direction, and the intermediate image being formed on an optical path of the light reflected by the optical element.

5. The inverted microscope system according to claim 4, wherein the additional unit having a relay optical system to relay the intermediate image of the sample to the observation tube.

6. The inverted microscope system according to claim 5, wherein the additional unit further comprising an optical element which takes out a part of a beam of the intermediate image of the sample relayed by the relay optical system, and a port to which image pickup means is attached, the image pickup means picking up a sample image taken out via the optical element.

7. The inverted microscope system according to claim 2, wherein the optical element including a first optical element which reflects a beam from the objective lens obliquely upward, and a second optical element which reflects the light in a substantially horizontal direction,

any one of the first optical element and the

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second optical element being selectively attached to the microscope main body.

8. The inverted microscope system according to claim 7, wherein the additional unit having a relay optical system to relay the intermediate image of the sample to the tube.

9. The inverted microscope system according to claim 9, wherein the additional unit further comprising an optical element which takes out a part of a beam of the intermediate image of the sample relayed by the relay optical system, and a port to which image pickup means is attached, the image pickup means picking up a sample image taken out via the optical element.

10. The inverted microscope system according to claim 2, wherein the optical element having a variable reflection angle.

11. The inverted microscope system according to claim 10, wherein the additional unit having a relay optical system to relay the intermediate image of the sample to the observation tube.

12. The inverted microscope system according to claim 11, wherein the additional unit further comprising an optical element which takes out a part of a beam of the intermediate image of the sample relayed by the relay optical system, and a port to which image pickup means is attached, the image pickup means picking up a sample image taken out via the optical

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element.

13. The inverted microscope system according to claim 2, wherein the optical element being detachable.

5 14. The inverted microscope system according to claim 13, wherein the additional unit having a relay optical system to relay the intermediate image of the sample to the observation tube.

10 15. The inverted microscope system according to claim 14, wherein the additional unit further comprising an optical element which takes out a part of a beam of the intermediate image of the sample relayed by the relay optical system, and a port to which image pickup means is attached, the image pickup means picking up a sample image taken out via the optical
15 element.

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